



STATE OF NEVADA
COMMISSION ON MINERAL RESOURCES
DIVISION OF MINERALS
400 W. King Street, Suite 106
Carson City, Nevada 89703
(775) 684-7040 | Fax (775) 684-7052
<http://minerals.nv.gov>

Date Received	<u>1-10-2018</u>
County	<u>Esmeralda</u>
NDOM Permit Number	<u>W0001</u>
FOR DIVISION USE ONLY	

DISSOLVED MINERAL RESOURCE EXPLORATION WELL PERMIT APPLICATION

Applicant/Operator Name Sierra Lithium LLC

Street Address 4755 Caughlin Parkway

City Reno State/Prov. Nevada

Country USA Zip Code 89519

hereby makes application for a dissolved mineral resource exploration well permit.

(if applicant is a corporation, show state and date of incorporation; if a partnership, list names of partners.)

Sierra Lithium LLC is a domestic Limited Liability Company incorporated in the State of Nevada on October 31, 2016.

This application is for a: ☒ New Exploration Well ☐ Borehole to Well Conversion
☐ Permit extension (NDOM Permit # _____) (Indicate below any changes to original permit)

Applicant is: ☐ Land Owner ☒ Lease/Claim Holder

Land Status:

☒ Federal (BLM, USFS, etc...)

Mining Claim: NMC# 1138145

Project Name: Columbus Salt Marsh Valley Exploration Project (CB-1)

NVN# 95705

☐ Non Federal

APN#: _____

Land Owner: _____

Bond Type: _____

Issued by: _____

Amount: _____

Number: _____

Groundwater Basin Name and Number

Area With Limitations?

Columbus Salt Marsh Valley - 118

☐ Y ☒ N

(Well proposed to be drilled within areas with limitations may require Blowout Prevention Equipment, per NAC 534B)

Location of Well:

County: Esmeralda

SW 1/4 of the SE 1/4 of 22 Sec., Township 02 ☒ N ☐ S, Range 36 E

UTM East: 415759.58

Longitude: _____

UTM North: 4207298.86

Latitude: _____

☒ NAD83 ☐ WGS84 M.D.B. & M.

Drilling Contractor (if known): Boart Longyear

Address: 2745 W. California Ave.

City, State Zip: Salt Lake City, UT 84101

Purpose of Well: Dissolved mineral resource exploration, characterization and subsequent monitoring

Drill Rig Type: LS-244 (Core / Rotary)

Surface Hole Diameter: See attached schematic

Casing Size/Length: See attached schematic

Expected Total Depth: 3280 feet

Casing Weight/Gauge: See attached schematic

Casing Schedule/Grade: See attached schematic

Blowout Prevention Equipment Rating: ☐ None ☒ 2000 psi ☐ 3000 psi ☐ 5000 psi

Fluid Management Plan (NAC 534B):

See attached drilling program for details.

(Describe Here or Attach Additional Pages)

Contamination Prevention/Cementing Plan (NAC 534B):

See attached drilling program for details.

(Describe Here or Attach Additional Pages, must include Well Schematic)

Well Monitoring and Plugging Plan (NAC 534B):

See attached drilling program for details.

(Describe Here or Attach Additional Pages)

Drilling will commence approximately on: 2018 Q1

Signature of Applicant/Agent: 

Printed Name/Title: Timothy P. Donahoe, PLS, WRS, CEM

Date: 1/10/2018

An application submitted without a signature and date will not be considered for approval.

-----Attach \$1,000.00 Application Fee Per NAC 534B -----

----- TO BE COMPLETED BY DIVISION -----

CONDITIONS OF PERMIT

1. All permittees must comply with appropriate sections of the Dissolved Mineral Resource Regulations of the Division of Minerals and with applicable rules and regulations of state and federal agencies.
2. For a well located on non-federal land, a bond in an amount determined by the Division to be necessary to properly plug the well in accordance with NAC 534B must be included.
3. Well Permit Expires two (2) years from date of approval.
4. See attached Conditions of Approval.
5. Send any required reports to: ndom@minerals.nv.gov
6. Additional Conditions/Comments

A.	NOTIFY THE DIVISION 48 HOURS BEFORE SPUDDING THE WELL.
B.	NOTIFY THE DIVISION 48 HOURS BEFORE BOP TESTS.
C.	NOTIFY THE DIVISION OF ANY DRILLING PROGRAM CHANGES.

This permit does not extend the permittee the right of ingress and egress on public, private or corporate lands.

The issuance of this permit does not waive the requirements that the permit holder obtain other permits from State, Federal, and local agencies.

PERMIT APPROVAL

Approved 1-16-2018 with the conditions noted above.
Date

Permit Number W0001



Administrator
Division of Minerals

Additional Details for the Drilling of Sierra Lithium LLC CB-1 and CB-2

CB-1 is proposed to be drilled to 1000 meters, or 3280 feet.

CB-2 is proposed to be drilled to 800 meters, or 2624 feet.

Proposed Exploration Disturbance

SLL is proposing a diamond core drilling program, to test for lithium enriched brines, located in sections 22 and 27 of Township 2 North, Range 36 East, Mount Diablo Baseline and Meridian.

Disturbance will include existing access roads, new exploration roads, and two drill pads as shown on figures 2 and 3. The intersection at U.S. Highway 6 and the existing road to Columbus Salt Marsh Valley (CSMV) will need to be improved to provide safe turning for heavy vehicles. New exploration roads will have an average road width of 12 feet. The drill pads will be approximately 100 feet long and 90 feet wide. A mud sump with average dimensions of 5 feet wide by 12 feet long will be constructed within the drill pad area. Slopes are less than 30% in the project area.

SLL intends to limit the disturbance to minor route improvements where conditions require, including to improve the intersection of the access road with U.S. Highway 6 and to construct access roads to the two drill pads.

The Notice Level Exploration Reclamation Cost Model (SRCE) was used to generate the required reclamation areas. Table 1 shows the input lengths and the area generated by the SRCE for the proposed disturbance.

Table 1: Proposed New Disturbance

Exploration Component	Amount	Units	Total Area (acres)
Exploration Drill Sites	2	Each	0.34
Sumps	2	Each	0.11
New Construction ¹	1,655	Linear Feet	0.68
Intersection Improvement	600	Linear Feet	0.25
Totals			1.38

¹The areas that are calculated in SRCE are based on a 14 foot-wide road

Description of Notice Operations

Water for drilling operations will be purchased from the town of Silver Peak, Nevada, or another nearby source.

Overland and new construction access disturbance will be limited to the minimum requirements needed to accommodate the equipment and the intended safe use, to maintain surface resource protection, and to maximize revegetation potential. The overland access will consist of single lane travel with disturbance widths of less than 14 feet due to the flat topography. Newly

constructed roads will have a travel width of 12 to 14 feet. Improvement to the intersection of the access road and U.S. Highway 6 will include appropriate grading and the placement of additional ballast to the shoulder to allow safe turning for heavy vehicles. SLL will coordinate with the Nevada Department of Transportation as needed.

Exploration drill sites will be constructed with typical dimensions of 100 feet by 90 feet. Excess water from the drilling process will be contained on site in mud tanks or in the sumps to evaporate over time. Sumps for drill mud and water will be excavated within the disturbance limits of the drill site using a backhoe or similar equipment. Anticipated sump dimensions will be about 12 feet by 5 feet by 4 feet deep. One end of each sump will be sloped to provide escape routes for wildlife or other animals. For constructed sumps on the drill sites, growth media will be saved and stockpiled in the side cast fill material.

Access to the drill sites will be by overland travel due to the gentle, open terrain. Exploration and drilling personnel will access the site in pickup trucks. One Boart Longyear L244 drill rig on a jack-up platform or similar will be utilized along with support vehicles, such as a pipe truck or trailer, water truck, forklift, mud tanks, and a portable light plant and generator.

While not anticipated, stormwater controls will be constructed or installed to prevent or to reduce erosion in keeping with sound engineering practices for the class of vehicle or equipment used for the drilling project. Typical drainage structures will consist of water bars, borrow ditches, contour furrows, and culverts sized to handle maximum seasonal water flows, and road and drill site cut banks will be constructed with the appropriate slope to minimize erosion and visual effects. Diverted runoff water will be directed away from ephemeral drainages.

Surface and Ground Water

- **Erosion Prevention and Control**

SLL will conduct exploration operations in a manner that minimizes soil erosion. Equipment will not be operated when ground conditions are such that excessive resource damage or increased sediment transport will occur. Best management practices (BMPs) will be utilized to control erosion and sedimentation.

BMPs for sediment control will be employed as needed during construction, operation, and reclamation to minimize sedimentation of disturbed areas. Sediment control structures will include, but not be limited to, fabric and/or certified weed free straw bale filter fences, siltation or filter berms, mud sumps, and down gradient drainage channels in order to prevent unnecessary or undue degradation to the environment. Sediment traps (sumps), constructed as necessary adjacent to drill sites, will be used to settle drill cuttings and prevent uncontrolled release of drill cuttings. In order to control erosion from roads and drill sites, and from the unlikely event of drilling cuttings being released, certified weed-free straw bales and silt fences will be placed in drainages to capture sediment, where required.

- **Stormwater and Control**

Sediment controls, such as straw or hay bales, filter fences, or other controls will be implemented as necessary. Where straw or hay bales are required, only certified weed-free product may be used.

While not anticipated due to the environment and generally flat terrain, stormwater controls will be constructed or installed where necessary to prevent or minimize erosion and sedimentation. Drainage structures will consist of, but not be limited to, water bars, borrow ditches, contour furrows, and culverts sized to handle maximum seasonal water flows. Disturbed areas will be broadcast-seeded with an approved seed mix to reduce erosion immediately after construction. Once an area has been revegetated, notices and/or signs may be posted to allow vegetation to establish while reducing or restricting vehicular traffic.

- **Drilling Effluent Management**

Drilling fluid products used during drilling and abandonment operations will be contained and deposited in tanks with overflow to sumps to ensure environmental protection.

Overflow and mud sumps for drill water, fluids, and cuttings will be excavated within the limit of the drill site using a backhoe. Anticipated sump dimensions will be 12 feet by 5 feet by 4 feet deep. One end of each sump will be sloped to provide escape routes for wildlife or other animals.

Sumps will be backfilled after completion of drilling. If mud tanks are cleaned at the site, the contents will be contained in the sump and covered with backfilled soil materials.

- **Drill Hole or Well Abandonment**

Drill holes or wells will be plugged in accordance with Nevada State and administering agency standards and will be consistent with the definitions in NAC 534 for abandonment. Each exploration drill hole will be abandoned before the rig moves from each drill site unless the drill hole is completed as a well. The abandonment costs included in the SRCE are for two wells.

Solid Waste and Hazardous Substances

Non-hazardous exploration project-related refuse will be collected in approved trash bins and/or containers and hauled from the site by SLL or their contractors for disposal at an approved landfill on a regular basis. The bins and/or containers will be equipped with lids. Debris that may have a hazardous characteristic, residue, or fluids will not be disposed of in these trash bins. To minimize impacts during precipitation events, trash bins will be regularly inspected for leaks and the lids will remain closed except when depositing debris. The trash bins will not contain materials that may attract wildlife (food items, etc.) and will be emptied on a regular basis.

Hazardous substances employed for the exploration project will include diesel fuel, gasoline, hydraulic fluid, and lubricating grease. Approximately 300 gallons of diesel fuel and gasoline will be stored in fuel delivery systems on drill rigs and support vehicles. Approximately 50 pounds of lubricating grease and 35 gallons of hydraulic fluid will be stored on each drill rig or transported by drill trucks. Transportation of these materials will be conducted in accordance with applicable regulatory guidelines.

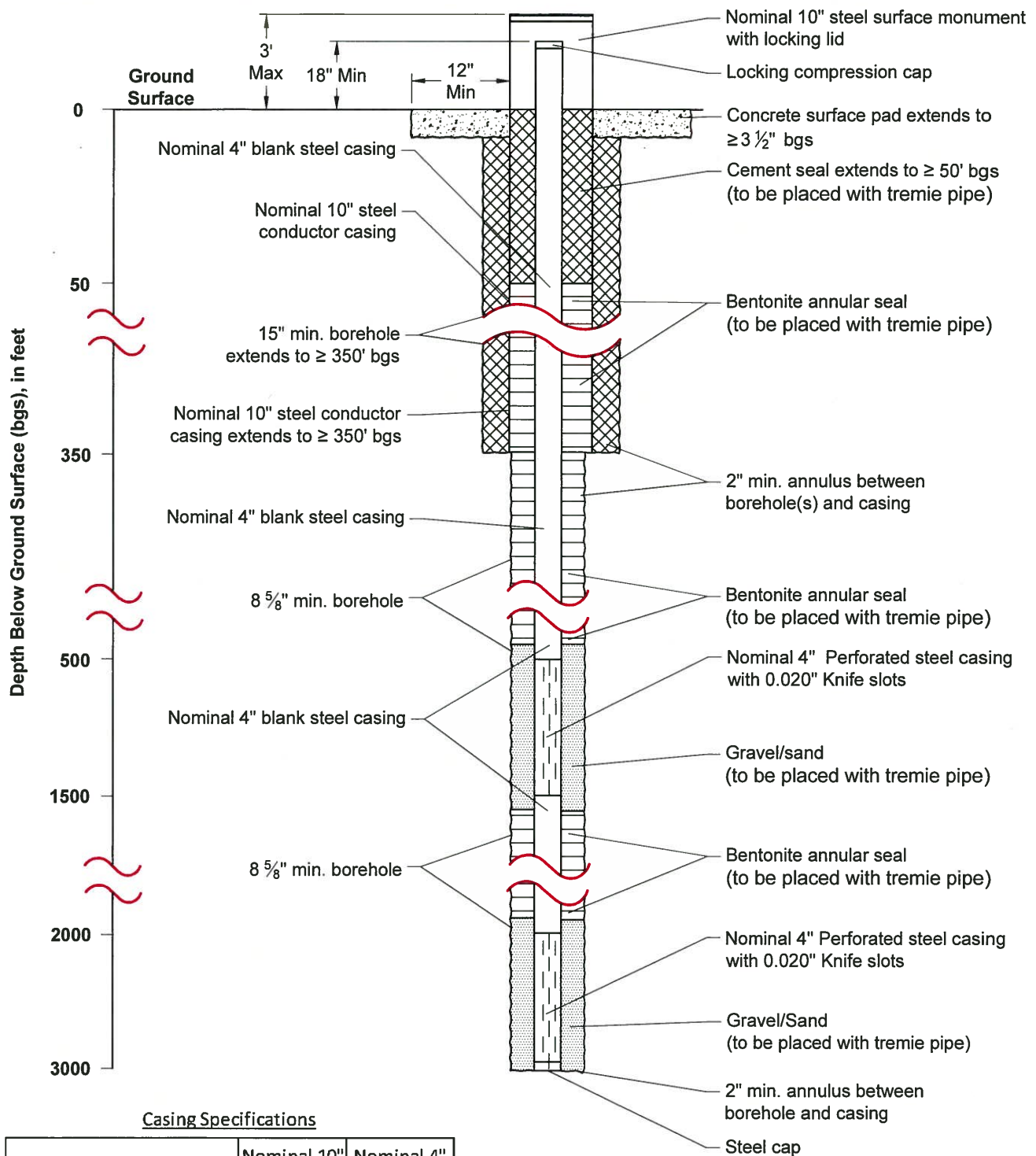
Schedule for the Project and Reclamation

Drilling success will determine the reclamation schedule. Disturbances will be reclaimed at the earliest opportunity unless economically viable resources are identified.

Earthwork and revegetation activities are limited by the time of year during which such activities can be effectively implemented. Site conditions and/or yearly climatic variations may require that this schedule be modified to achieve revegetation success. Reclamation activities will be coordinated with the BLM as necessary. Monitoring of revegetation success will be conducted annually for a minimum of three years or until revegetation standards have been met.





Drill Hole Plugging Procedures

Exploration drill holes will be plugged in accordance with Nevada regulations as described in Section 1.11 .3. A drill rig with appropriate support equipment will be used to abandon the drill holes before the drill rig leaves the drill site. Plugging will be in accordance with Nevada State and administering agency standards and will be consistent with the definitions in NAC 534 for abandonment.



Casing Specifications

	Nominal 10"	Nominal 4"
Grade of steel	Low carbon	Low carbon
Weight per foot (pounds)	28.04	11.7
Wall thickness (in)	0.25	0.25
Collapse strength (psi)	461	2528
Burst pressure (psi)	1428	3889

Concrete	Cement	Sand	Bentonite
			
$\frac{1}{\text{yd}^3}$	$\frac{10}{\text{yd}^3}$	$\frac{25}{\text{yd}^3}$	$\frac{15}{\text{yd}^3}$

DESIGN: TD
DRAWN: PM
REVIEWED: TD
APPROVED: TD

PREPARED BY:



PREPARED FOR:

SIERRA LITHIUM LLC

DRAWING TITLE:

GENERALIZED WELL SCHEMATIC FOR
PROPOSED DMRE WELL

DATE:
1/5/2017

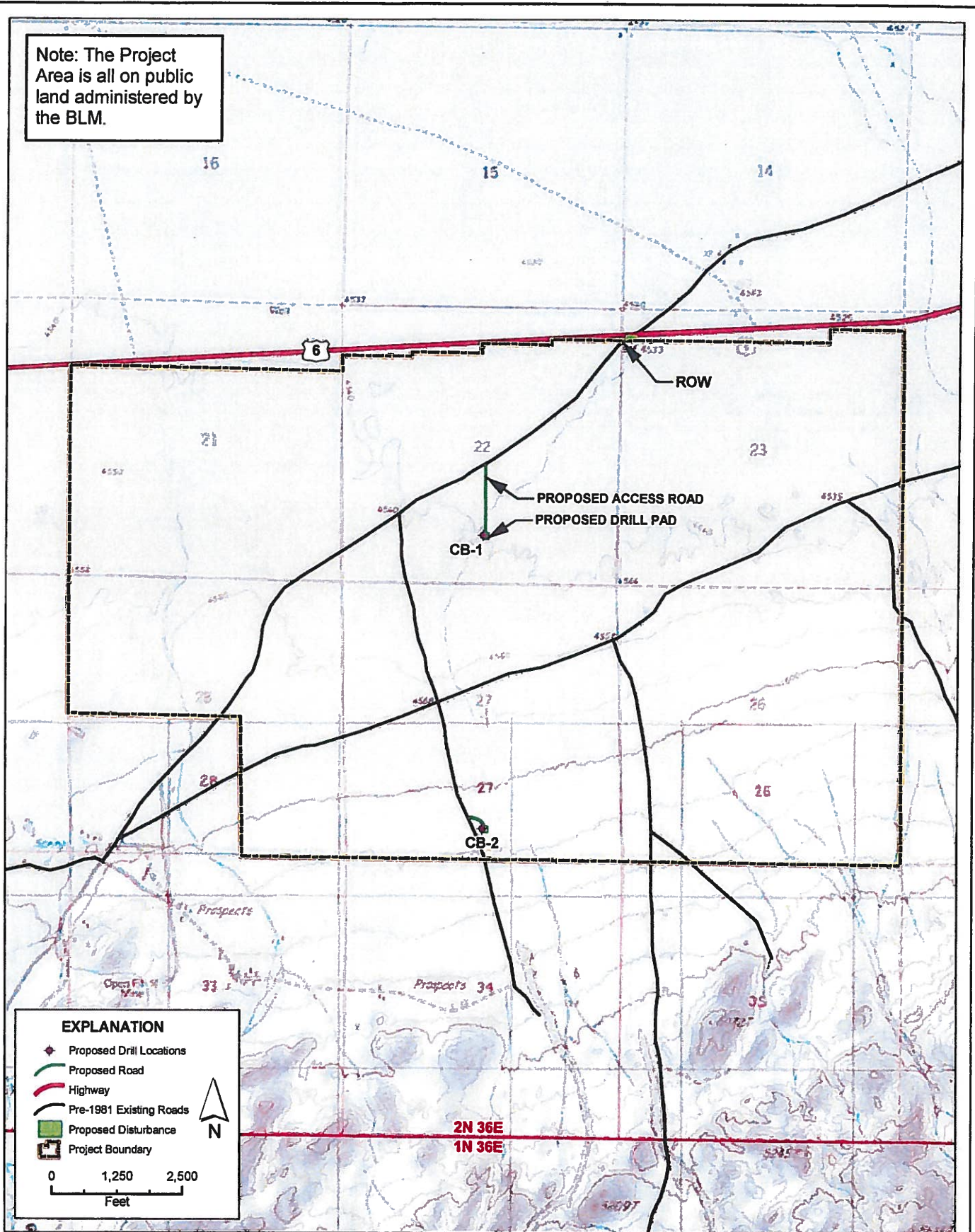
REVISION

DRAWING NO.:

SRK PROJECT NO.:
515000.010

FIGURE 3

Note: The Project Area is all on public land administered by the BLM.



EXPLANATION

- ◆ Proposed Drill Locations
- Proposed Road
- Highway
- Pre-1981 Existing Roads
- Proposed Disturbance
- Project Boundary



0 1,250 2,500
Feet

srk consulting

SIERRA LITHIUM, LLC.

DRAWING TITLE:

PROPOSED EXPLORATION

NAD 1927 UTM Zone 11N

DESIGN: - DRAWN: GK REVIEWED: CA

SCALE: 1 inch = 2,500 feet DATE: 12/14/2017

FILE: FIG1_CSM_SMALL_EXPLORATION_PROJECT_20171214.mxd

**SMALL EXPLORATION PROJECT
COLUMBUS SALT MARSH**

ISSUED FOR:

INFORMATION FILING

DRAWING NO.

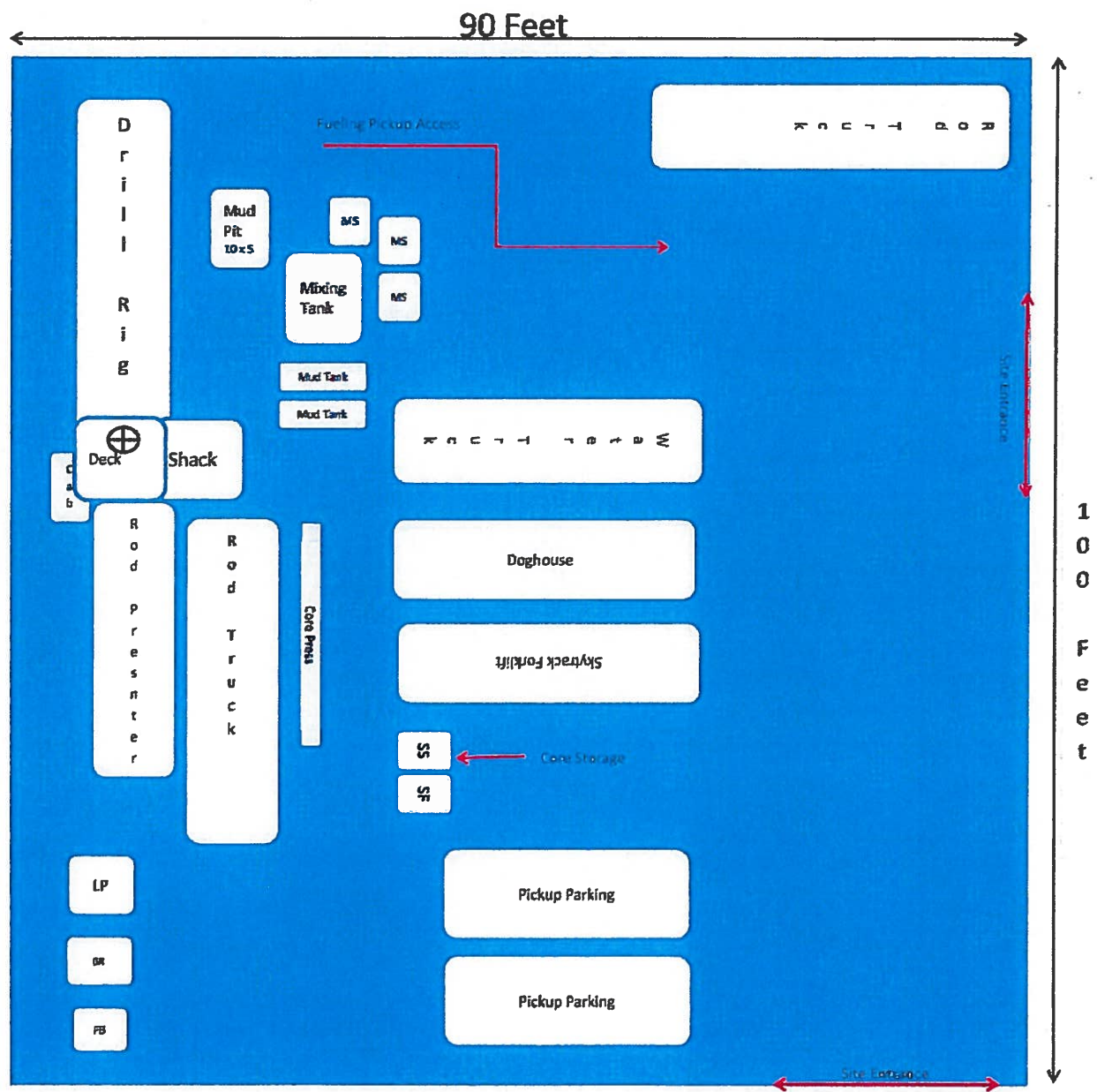
FIGURE 1

JOB NO.

515000.010

REVISION

A



DETAIL OF LAYOUT OF DRILL SITE

DESIGN: TD	<div>PREPARED BY</div> <div></div>	<div>DRAWING TITLE</div> <div>GENERAL WELL DRILLING SITE PLAN</div>			
DRAWN: PM					
REVIEWED: TD		<div>PROJECT</div> <div>SIERRA LITHIUM LLC</div>	<div>DATE</div> <div>12/18/2019</div>	<div>REVISION</div> <div>---</div>	<div>DRAWING NO</div> <div>FIGURE 2</div>
APPROVED: TD			<div>SRK PROJECT NO</div> <div>483600.010</div>		
<div>IF THE ABOVE BAR DOES NOT MEASURE 1 INCH, THE DRAWING SCALE IS ALTERED</div>					



BRIAN SANDOVAL
Governor

STATE OF NEVADA
COMMISSION ON MINERAL RESOURCES
DIVISION OF MINERALS

400 W. King Street, Suite 106
Carson City, Nevada 89703
(775) 684-7040 • Fax (775) 684-7052
<http://minerals.nv.gov/>



RICHARD PERRY
Administrator

Las Vegas Office: 2030 E. Flamingo Rd. #220, Las Vegas, NV 89119
Phone: (702) 486-4343; Fax: (702) 486-4345

**DISSOLVED MINERALS RESOURCE
EXPLORATION WELL
SIERRA LITHIUM LLC CB-1
CONDITIONS OF APPROVAL**

Submit forms and correspondence to: Nevada Division of Minerals
400 West King Street
Suite 106
Carson City, NV 89703

Communications with the Division shall be directed to:

Lowell Price, Fluid Minerals Program Manager

Office 775-684-7045 Email lprice@minerals.nv.gov
Cell 775-721-1774
Fax 775-684-7052

Courtney Brailo, Field Specialist Email cbrailo@minerals.nv.gov

Office 775-684-7046
Cell 775-721-2726
Fax 775-684-7052

Rich Perry, Division Administrator

Office 775-684-7047 Email rmperry@minerals.nv.gov
Cell 775-721-0282
Fax 775-684-7052

Voicemail is available on all cell phones and office phones. Please leave a message if you are unable to speak to someone and we will return your call as quickly as possible.

YOUR APPLICATION TO DRILL THE **DMRE SIERRA LITHIUM LLC CB-1**
EXPLORATION WELL IS APPROVED SUBJECT TO THE FOLLOWING PERMIT
CONDITIONS

1. All actions related to the drilling of this exploratory well must abide by the statutes set forth in Assembly Bill 52 of the 2017 legislative session:
https://www.leg.state.nv.us/Session/79th2017/Bills/AB/AB52_EN.pdf.
2. A licensed water well driller must be on location during the drilling operations of this well.
3. When drilling a dissolved mineral resource exploration well, a well driller shall:
 - (a) Isolate zones of varying water quality to prevent the migration of fluids between aquifers;
 - (b) Prevent the contamination or waste of groundwater; and
 - (c) Minimize damage to the environment, ground and surface waters, property and any known oil, gas or geothermal resources.
4. The following standards apply to the construction of a dissolved mineral resource exploration well:
 - (a) The top of the casing must be at least 18 inches above the surface of the ground;
 - (b) The surface casing must:
 - (1) Provide for the control of formation fluids and protection of groundwater, including, without limitation, setting sufficient casing to reach a depth below all known or reasonably estimated levels of good quality water to protect the aquifer and prevent blowouts or uncontrolled flows; and
 - (2) Provide a minimum 2-inch annular space;
 - (c) There must be a minimum 50-foot surface seal using neat cement;
 - (d) If an intermediate string of casing is used which does not extend to the surface, the top of the liner must overlap the bottom of the surface casing by at least 100 feet.
5. The operator shall ensure that blowout prevention equipment is installed on any dissolved mineral resource exploration well where temperatures may exceed 200 degrees Fahrenheit.
6. An operator and well driller shall take all necessary precautions to keep a dissolved mineral resource exploration well under control and operating safely at all times. Well control and wellhead assemblies used in any dissolved mineral resource exploration well must meet the minimum specifications for assemblies prescribed by the American Petroleum Institute, or its successor organization, in Standard 53, "Blowout Prevention Equipment Systems for Drilling Wells," Fourth Edition, which is available by mail from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112-5776, by telephone at (800) 854-7179 or at the Internet address <http://global.ihs.com>, for the price of \$155, or such specifications as may be prescribed by the Administrator.

7. Blowout prevention equipment capable of shutting in a dissolved mineral resource exploration well during any operation must be installed on the surface casing and be maintained in good operating condition at all times. Such equipment must have a rating for pressure greater than the maximum anticipated pressure at the wellhead.
8. An operator shall:
 - (a) Test the blowout prevention equipment under pressure. The results of each test must be recorded by the well driller in the well log.
 - (b) Submit, on a form designated by the Division, the pressure data and supporting information for the blowout prevention equipment as soon as practicable after the conclusion of the test conducted pursuant to paragraph (a).
9. If an artesian condition is encountered in a dissolved mineral resource exploration well, such that water is flowing at the surface, the well driller shall ensure that an unperforated casing extends through the confining strata above the artesian zone. The annular space between the casing and the walls of the well bore must be sealed by placing neat cement, cement grout or bentonite chips by tremie pipe in an upward direction from the top of the artesian zone to the level necessary to prevent the leakage of artesian water above or below the surface.
10. Any flow of artesian water must be stopped completely using any necessary valves, plugs or other appliances to prevent or control the flow of water from the dissolved mineral resource exploration well and prevent the loss of groundwater above or below the ground surface before the drill rig is removed from the drill site.
11. The operator of a dissolved mineral resource exploration well shall:
 - (a) Install a water meter capable of measuring the total withdrawal of water, resulting from pumping for the purpose of testing and sampling the dissolved mineral resource exploration well.
 - (b) Maintain an accurate record of meter readings, including the serial number of the meter.
 - (c) Submit to the Division, on a form designated by the Division, a quarterly report which includes the serial number of the meter and the meter readings from the dissolved mineral resource exploration well. The report:
 - (1) Is required to include meter readings for each month beginning with the completion of drilling operations until the later of the expiration of the permit or until the dissolved mineral resource exploration well is plugged; and
 - (2) Must be filed with the Division on or before the last day of January, April, July, and October of each year with the record for the quarter preceding the month the report is filed.
 - (d) Ensure the total withdrawal of water from the dissolved mineral resource exploration project does not exceed 5 acre-feet.
 - (e) Obtain a water right in compliance with the appropriation requirements of chapters 533 and 534 of NRS before water is pumped from the dissolved mineral resource exploration project in excess of 5 acre-feet.

12. The well driller shall:

- (a) Keep a record of the depth, thickness and character of the different strata penetrated and the location of the water-bearing strata;
- (b) Keep an accurate record of the work, including, without limitation:
 - (1) A statement of the date that work begins;
 - (2) The date of completion of the dissolved mineral resource exploration well;
 - (3) The name and the type of machine used to drill;
 - (4) The length, size and weight of the casing and how it is placed, including, without limitation, a description of any perforations;
 - (5) The size of the hole that is drilled for the dissolved mineral resource exploration well;
 - (6) Identification of the water-bearing strata;
 - (7) The maximum temperature of the water in the dissolved mineral resource exploration well measured in degrees Fahrenheit; and
 - (8) If a seal was installed, the interval sealed off and the type of seal; and
- (c) Submit a report of the record of the work to the Administrator on a form designated by the Division. The report must be provided by the well driller to the Administrator for every dissolved mineral resource exploration well that is drilled not later than 30 days after the well is completed.

13. A dissolved mineral resource exploration well must be plugged by:

- (a) A well driller before the expiration of the permit, unless a waiver or permit is issued by the State Engineer to change the status of the dissolved mineral resource exploration well.
- (b) Placing neat cement, cement grout or bentonite grout by tremie pipe in an upward direction from the bottom of the well to 100 feet above the uppermost perforated casing or to the surface of the dissolved mineral resource exploration well.
- (c) Removing the pump and any debris from the well bore with appropriate equipment.

14. Cement plugs must:

- (a) Be placed in the uncased portion of all dissolved mineral resource exploration wells to protect all subsurface resources.
- (b) Extend a minimum of 100 lineal feet above the producing formations and 100 lineal feet below the producing formations or to the total depth drilled, whichever is less.
- (c) Be placed to isolate formations and to protect the fluids in those formations from interzonal migration.

15. A well driller may use uncontaminated fill from the top of the plug installed in accordance with subsection 1 to within 20 feet of the surface of the dissolved mineral resource exploration well. The well driller shall place a surface plug in the dissolved mineral resource exploration well consisting of neat cement, cement grout or concrete

grout from a depth of at least 20 feet to the surface of the dissolved mineral resource exploration well.

16. All casing strings must be cut off below ground level and the casing stub must be permanently capped.
17. The surface must be restored as near as practicable to its original condition.
18. If conditions are encountered which prevent compliance with this section, the operator or well driller must submit an alternative plugging plan to the Division for the approval of the Division.
19. The operator or well driller shall file a plugging report to the Division on a form designated by the Division and available on the Internet website of the Division. The report must be signed by the well driller documenting proper plugging of the dissolved mineral resource exploration well not later than 30 days after completion of the work.
20. The owner and lessor of the land on which the dissolved mineral resource exploration well is located, the operator and the well driller are jointly and severally responsible for plugging the dissolved mineral resource exploration well pursuant to this chapter.
21. A permit to drill a dissolved mineral resource exploration well may be modified, suspended or revoked in whole or in part for any violation of this chapter and may be grounds for an action for enforcement.